Comparison of the Acid Detergent Lignin (ADL) among Seven Populations of *lespedeza davurica*

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The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Key words : *lespedeza davurica* ,population ,acid detergent lignin (adl) ,cultivation ,domestication

Introduction *Lespedeza davurica* is an important subshrub in Northern China . It is a drought tolerant , warm season plant . It is grown for hay and pasture , soil improvement , erosion abatement , and to benefit wildlife (Delectis florae reipublicae popularis sinicae agendae academiae sinicae edita , 1995) . Lignification of the plant cell wall has long been considered to be the primary impediment to forage digestibility (Jung , H .G . ,1993) . The purpose of this study was to compare acid detergent lignin (ADL) among seven populations of *Lespedeza davurica* from Henan (HN) and Shanxi (SX) provinces in China .

Materials and methods Seven populations (HN and SX) of *Lespedeza davurica* (Table 1) were studied using a randomized complete experimental design , sown using three replicates in a field without irrigation at Jinzhong in Shanxi . Acid detergent lignin (ADL) was measured . (Van Soest , P . J . , and J . B . Robertson . 1980)

Table 1 *The source of the materials .*

Code of population	Origin	Longitude latitude
Pop 1	Gong yi city of he nan	112°85′E ,34°26′N
Pop 2	Xin an county of he nan	112°44′E ,34°7′N
Pop 3	Yang quan city of shan xi	113°57′E ,37°85′N
Pop 4	Jiao kou county of shan xi	111°2′E ,36°97′N
Pop 5	Qin shui county of shan xi	114°16′E ,35°70′N
Pop 6	Qin yuan county of shan xi	112°32′E ,36°5′N
Pop 7	Tai gu county of shan xi	112°53′E ,34°72′N

Results On the contrary , the content of acid detergent lignin (ADL) increased with procreating (Table 2) . Its value ranged between 5 .88% and 8 .52% at jointing stage , 10 .57% and 13 .42% at heading stage , 11 .95% and 14 .58% at blooming stage , and 12 .61% and 17 .73% at bearing stage . The values of ADL content were significantly different between the seven populations ($P<0.05$) . As we already know , at the forepart of growth , the ADL content of grazing was lower and more easily digested because of its tender tress , and at the anaphase , the content was higher and thus harder to digest due to its rough tress .

Table 2 *The acid detergent lignin (ADL) of* Lespedeza davurica *(% of DM) .*

Code of population	Jointing stage	Heading stage	Blooming stage	Bearing stage
Pop 1	6 .29±0 .17de	13 .42±1 .34a	14 .96±0 .42a	16 .03±0 .57b
Pop 2	6 .13±0 .35e	11 .01±0 .64bc	11 .95±0 .54ef	12 .61±0 .23e
Pop 3	8 .52±0 .36a	10 .57±0 .62cd	12 .56±0 .23cde	13 .73±0 .71cd
Pop 4	6 .76±0 .41cd	10 .73±0 .31bc	12 .75±0 .76cd	13 .66±0 .47cd
Pop 5	6 .38±0 .15de	11 .29±0 .29bc	12 .95±0 .67cd	14 .31±0 .32c
Pop 6	7 .60±0 .47b	11 .86±0 .07b	14 .58±0 .58ab	17 .73±0 .17a
Pop 7	5 .88±0 .11e	10 .78±0 .26bc	13 .49±0 .14bc	15 .80±0 .38b

* In the same column with different small letters means the significantly difference ($P<0.05$)

Conclusions Plant cell walls with a high lignin content have long been considered to be the primary impediment to forage digestibility . *Lespedeza davurica* from Xin'an county of Henan was shown to have the lowest ADL , and is used for hay and pasture .

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